Waste Minimisation Statement

Minimisation of waste generated during construction

Materials used for the construction of the low impact dwellings will be primarily from natural resources sourced on site. Examples include timber used for constructing frames, floors and walls. This has several major environmental benefits. Firstly, there are no fossil fuels used in the production process of making them and no fossil fuels used to transport them onto site. Secondly, due to the fact that timber will be cut and extracted by either hand or by horse as part of our woodland management plan, this also has the result of significantly minimising the amount of damage done to the surrounding environment and ecology. Other materials such as turf for roofs, clay and straw will be sourced either on site or as local as is possible.

Any windows and doors to be used in the dwellings will be re-used, coming from existing developments and we already have connections with a glazing company in Cinderford who provides us with second hand doors and windows.

Other timber used in the developments will be recycled from existing pieces of wood such as from old pallets and scaffold boards, or from off-cuts of waste slabbing wood from local timber merchants such as 'Forest Products'.

The only elements of the build that will need to be obtained new will be the materials used for roofing such as canvas, tarps and rubber pond liners, and also metal joinings and fixings such as nails, screws, nuts and bolts. Although even some of these can be created on site on our forge from scrap metal.

Perhaps one of the greatest environmental benefits of building low impact temporary structures is that they do not have any concrete foundations or require any cement. This makes a significant difference to the amount of waste created. Firstly, the production of concrete is hugely energy intensive and as such the process uses a great deal of fossil fuels and creates waste products. In a standard development this would then have to be transported to site, which in turn requires more fossil fuels and causes damage to the local environment and ecology. Finally, once the concrete or cement and has been used more waste remains in the form of bags or containers which then need disposing of to landfill.

Nearly 100% of all internal furniture will be either reused from existing pieces or built using recycled timber.

The construction of the low impact dwellings will be done by hand using hand tools which are shared by the community. By negating the need for large mechanical machinery, this too reduces the amount of fossil fuels used in the construction of the buildings. It also reduces damage to the surrounding environment and ecology. Communal hand tools are maintained on site by carpenters and blacksmiths who are able to prolong the life of the tools by making repairs to handles and blades and as such again dramatically minimising the amount of material ending up in landfill.

Minimisation of waste from structures at 'end of life'

Due to the fact that the majority of the materials used in the low impact structures come from natural materials this means that they are also biodegradable come the end of their life. The absence of concrete foundations means that there is no long term impact on the earth and soil ecology. Materials which are non-degradeable can be salvaged and where possible either re-used or recycled into something new.

Minimisation of waste generated on site through daily living

The amount of waste created by those living at Yorkley Court Community Farm is considerably lower than that of the average person living in the Forest of Dean. A large part of this is that those individuals involved in the project are conscious to never to cause the creation of unnecessary resources which will end up in the landfill at the end of its life. This is done by ensuring that whenever something is used or consumed the following questions are asked,

- Do I need this?
- How will it be disposed of at the end of it's life?
- Can I reuse something which already exists?
- Can I recycle an existing object to meet my needs?
- Can it be recycled and used again in the future?
- How far has it travelled to get to me?

This informs an approach to consumption of goods which ideally aims to prevent the creation of waste altogether. If this cannot be achieved then one looks to reuse existing objects, or recycle things to create new items in the future and it is only after all these channels have been exhausted that waste should end-up in landfill or incinerated.

Due to an emphasis on increasing self-reliance and on a holistic permaculture approach to living, a large proportion of waste is prevented from ever being created. This is because systems are designed along the lines of positive feedback loops where it is regarded as inefficient to create anything that becomes waste. Instead 'the problem is often found to be the solution'. To give an example, as part of the production of cider a by-product is apple pulp. This pulp can be used to make cider vinegar or can be fed to pigs. The pigs can in turn be let to run in the orchard where their manure serves to fertilise the apple trees. In such a system as this there is no waste, everything is seen as a valuable resource. As John Seymour quotes in his book *'The complete Guide to Self Sufficiency'*

> "*Nothing should be wasted on the self-sufficient holding. The dustman should never have to call."*

The greatest saving in waste that we make at YCCF is that of packaging associated with food. This is because most food is to be produced directly on site in the form of vegetables, eggs and dairy which do not require any disposable packaging. They also have zero food miles and therefore require no fossil fuels to transport them from producer to consumer. Being organic they are not grown using petroleum based fertilisers or chemical pesticides and herbicides. The vast majority of the rest of our food is purchased in bulk which has the advantage of not requiring vast amounts of individual packaging. Most of the packaging that is left once the food is consumed is in the form of paper sacks

which can be composted or reused. All kitchen waste and green waste is composted to create compost used to fertilise our gardens.

At Yorkley Court Community Farm we reuse and recycle all our unwanted clothes and other household items through means of an onsite 'Freeshop'. This enables people to make use of others unwanted items. This dramatically reduces the amount of clothing and other items which need to be bought new and stops things from going to landfill.

Any items which are needed to be bought are usually purchased from charity shops. This saves on the creation of more waste and helps to support local charities.

Our onsite workshop and forge enable us to repair many existing items or to use some of the materials to make new things. We have a bike repairing area, and have made a pedal powered phone charger and pedal powered washing machine.

Because our water is drawn from our own spring on site, there is no additional waste created through water treatment.

Inevitably some waste packaging cannot be avoided entirely. Cardboard and paper are easily recycled on site through their use as kindling for starting fires. All other recyclables such as cans, plastic bottles, tins, glass and tetra paks are taken on a weekly basis to our local recycling point at the Bailey Inn and the co-op car park in Lydney.

Eventually what we are left with at the end of the week after all these avenues of 'reduce, reuse and recycle' is predominantly non-recyclable plastics. Of this we use what we can as seed trays and storage containers and finally we are left with one large bin bag of un-recyclable waste which is taken periodically to our local refuse centre.

Given all the above, if a full lifecycle analysis were to be conducted for all the things that we use and produce in our lives at Yorkley Court Community Farm it would in all likelihood find that our way of living serves to absorb more waste than it produces by reusing and recycling huge amounts of waste created by other people and thus reducing the amount of waste going to landfill.

Grey Water

By treating our own waste water we negate the need for wasteful municipal treatment facilities as well as saving water for growing non edible plant species.

According to the Environment Agency, Conserving Water in Buildings:

> "Cooled wastewater from the kitchen, baths and showers can sustain plants, but should not be used for edible varieties. Stored greywater can build up harmful bacteria so this water is best used once cooled and within a few hours."

YCCF do not intend to store the greywater on site so risks to health will be eliminated. The Environment Agency's report 'Energy and carbon implications of rainwater harvesting and greywater

recycling' suggests 'direct re-use' systems where the water does not need to be stored for another use:

> "Direct re-use systems involve no treatment and the greywater is only stored for very short periods of time to minimise bacteria growth and deterioration in water quality. For example, cooled bathwater can be used directly for garden watering."

Greywater contains phosphorus, nitrates and other nutrients and organic compounds that are readily absorbed by plants. Micro organisms in the topsoil can break down the remaining compounds, provided only biodegradable cleaning agents are used. YCCF strives to eliminate the use of all toxic cleaning agents and only use those which are deemed biodegradable.

At YCCF, greywater from the kitchen is channelled out to a trenched area with large amounts of willow, Salix spp, and a number of wetland plant species. This area is not used for growing food, instead the willow shoots in this area are harvested for weaving baskets and the steady cropping will encourage sustained absorption rates.

Toilets

Appropriate toilet facilities are available on the land adjacent to the car park. The toilets are based on the design of a "Tree Bog", a type of composting toilet, which was pioneered by the engineering company Biologic Design. This design ensures that all toilet waste is safely turned into organic soil and plant matter by the process of aerobic digestion.

This process requires that urine and faeces are kept in a controlled heap on top soil which is surrounded by trees. Naturally occurring micro organisms found on the roots of the trees and in the soil quickly digest the matter leaving high nutrient content soil. The heap is enclosed in wire mesh and straw to prevent animals interfering with the process and to inhibit access to the waste.

Tree Bogs have the following benefits:

1. They keep waterways safe from pathogens as well as the harmful chemicals that are used in municipal sewage plants.
2. They provide the soil with valuable nutrients.
3. They do not require a water supply.
4. No waste needs to be moved or handled, reducing the resultant health and safety issues.

The Environment Agency recognises the use of compost toilets and their policy statement '*Using composting toilets and the resulting compost*' says:

> "composting toilets can reduce water usage and produce an output which is suitable for use as a fertiliser...In these systems which can be either permanently sited or portable, a carbon source such as sawdust or wood shavings is added to reduce odour and aid the degradation process. "

Also Environment Agency summary [RM, EA, April 08] regarding regulatory considerations for disposal of solid and liquid wastes from composting toilets:

> “If the toilet is connected with a householder (i.e. located on a domestic premise), and the waste it generates is kept within the premises (e.g. spread onto a garden), it is not subject to control under the Environmental Permitting Regulations 2007 or Sludge (Use in Agriculture) Regulations 1989.”

The site is not within the Environment Agency's groundwater source protection Zone 1, and any discharge of urine will not be within 50 metres of a private water source.